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EXAMINER	
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ART UNIT	PAPER NUMBER
2416	

NOTIFICATION DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ip.department.us@nxp.com

Office Action Summary	Application No.	Applicant(s)	
	10/518,824	BAEY ET AL.	
	Examiner	Art Unit	
	ANDREW LAI	2416	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 September 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-6 and 8-14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2 and 4-10* is/are rejected.

7)☒ Claim(s) *3 and 11-14* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *21 December 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

A Brief Summary

In responding to Examiner's previous rejection (6/26/2008), Applicant presented (9/26/2008) remarks/arguments with no further amendments to previously presented claims. Therefore, the claims remain as those when previous Office Action was made.

In view of the Applicant's arguments, the Examiner concludes that the arguments were not persuasive. Consequently, previously made rejection is maintained as it was and Examiner provides a response to Applicant's remarks/arguments towards the end of this Office Action.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1, 2 and 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Freiberg et al (US 6,788,657, Freiberg hereinafter) in view of Higuchi et al (US 2002/0012383, Higuchi hereinafter).

The present application is drawn to an "Adaptive Rate Matching Method".

Freiberg discloses a "universal mobile telephone system [UMTS] network with improved rate matching method" (col. 1 lines 1-3) comprising the following features:

- **Regarding Independent Claims 1, 8 and 9**

Claim 1, *in a transmission system* (fig. 1, which "is a schematic view of a UMTS network" recited col. 1 line 66) *for transmitting simultaneously at a global transmission power, corresponding to a global quality factor on reception, a set of various multiplexed services* (refer to fig. 1 and see "in a UMTS network in which a plurality of services of a

single user having different transmission power requirements are multiplexed in one channel and the technique of rate matching is applied" recited col. 1 lines 46-49, noting that such "multiplexed in one channel" will necessarily result in *transmitting simultaneously at a global transmission power, corresponding to a global quality factor on reception*) *having specific predetermined error rate requirements* (see "required to achieve a desired Bit Error Rate" recited col. 1 lines 53-54) *matching individual quality factors* (see "deriving for each service the Energy per Bit per Noise density E_B/N_o required to achieve a desired Bit Error Rate" recited col. 1 lines 52-54, noting that "$(E_B/N_o)_i$ indicates a QoS of service i" recited col. 8 line 21) *achievable with adequately adjusted current individual transmission powers* (see "desired transmission quality requirements of each transport channel is fulfilled and not significantly exceeded. This means that required transmission power to meet quality requirement for all transport channels is as low as possible" recited col. 2 lines 63-67), *a method of resource optimization* (see "a method of calculating the number of bits to be punctured or repeated to achieve effective rate matching" recited col.1 15-17) *comprising a step of balancing said current individual transmission powers with respect to, for a given service* (see "Semi-static Rate Matching: this is used to balance the transmission power requirements of different services, which are multiplexed to one Common Composite Traffic Channel (CCTrCH)" recited col. 3 lines 11-14), a desired bit *error rate* (see "to achieve the desired Bit Error Rate BER" recited col. 3 lines 34-35).

Claim 8, *a transmission system* (fig. 1, "a schematic view of a UMTS network" recited col. 1 line 66) *comprising an emitting entity* (fig. 1 "UE 12" and "UE 14" or

"mobile users 12, 14" recited col. 2 line 14) *and a receiving entity* (fig. 1 "Node B 16" or "base station BTS/Node B 16" recited col. 2 lines 14-15) *for transmitting simultaneously at a global transmission power a set of various multiplexed services* (refer to fig. 1 and see "in a UMTS network in which a plurality of services of a single user having different transmission power requirements are multiplexed in one channel and the technique of rate matching is applied" recited col. 1 lines 46-49, noting that such "multiplexed in one channel" will necessarily result in *transmitting simultaneously at a global transmission power*) *having specific predetermined error rate requirements* (see "required to achieve a desired Bit Error Rate" recited col. 1 lines 53-54) *matching quality factors* (see "deriving for each service the Energy per Bit per Noise density E_B/N_o required to achieve a desired Bit Error Rate" recited col. 1 lines 52-54, noting that "$(E_B/N_o)_i$ indicates a QoS of service i" recited col. 8 line 21) *achievable with adequately adjusted current individual transmission powers* (see "desired transmission quality requirements of each transport channel is fulfilled and not significantly exceeded. This means that required transmission power to meet quality requirement for all transport channels is as low as possible" recited col. 2 lines 63-67), *the transmission system comprising resource optimization means* (fig. 2 "Rate Matching 45/55" means) *including means of balancing said current individual transmission powers with respect to, for a given service* (see "Semi-static Rate Matching: this is used to balance the transmission power requirements of different services, which are multiplexed to one Common Composite Traffic Channel (CCTrCH)" recited col. 3 lines 11-14), a desired bit *error rate* (see "to achieve the desired Bit Error Rate BER" recited col. 3 lines 34-35).

Claim 9, *in a transmission system* (fig. 1, "a schematic view of a UMTS network" recited col. 1 line 66) *comprising an emitting entity* (fig. 1 "Node B 16" or "base station BTS/Node B 16" recited col. 2 lines 14-15) *and a receiving entity* (fig. 1 "UE 12" and "UE 14" or "mobile users 12, 14" recited col. 2 line 14, noting that Freiberg discloses "This entire procedure exists also in the downlink direction, ie from the BTS 16 to mobile 12 or 14" recited col. 2 lines 47-48) *for transmitting simultaneously at a global transmission power a set of various multiplexed services* (refer to fig. 1 and see "in a UMTS network in which a plurality of services of a single user having different transmission power requirements are multiplexed in one channel and the technique of rate matching is applied" recited col. 1 lines 46-49, noting that such "multiplexed in one channel" will necessarily result in *transmitting simultaneously at a global transmission power*) *having specific predetermined error rate requirements* (see "required to achieve a desired Bit Error Rate" recited col. 1 lines 53-54) *matching quality factors* (see "deriving for each service the Energy per Bit per Noise density E_B/N_o required to achieve a desired Bit Error Rate" recited col. 1 lines 52-54, noting that "$(E_B/N_o)_i$ indicates a QoS of service i" recited col. 8 line 21) *achievable with adequately adjusted current individual transmission powers* (see "desired transmission quality requirements of each transport channel is fulfilled and not significantly exceeded. This means that required transmission power to meet quality requirement for all transport channels is as low as possible" recited col. 2 lines 63-67), *the receiving entity* (fig. 1 mobile 12 or 14) *comprising resource optimization means* (fig. 2 "Rate Matching 45/55" means) *including means of balancing said current individual transmission powers with respect to, for a*

given service (see "Semi-static Rate Matching: this is used to balance the transmission power requirements of different services, which are multiplexed to one Common Composite Traffic Channel (CCTrCH)" recited col. 3 lines 11-14), a desired bit *error Rate* (see "to achieve the desired Bit Error Rate BER" recited col. 3 lines 34-35).

Freiberg does not expressly disclose the following feature (underlined part below) for all of above Independent claims 1, 8 and 9:

… balancing said current individual transmission powers with respect to an estimation, for a given service, of a difference between said specified predetermined error rate requirement and a measured current error rate. However, since Freiberg has already taught to perform the same *with respect to* achieving the desired Bit Error Rate PER as cited above, there would have been obvious and would have no difficulty for Freiberg to do the same as what is shown in Higuchi.

Higuchi discloses a "transmission power control method and mobile communication system" (p1 left col. lines 1-2) comprising, regarding claims 1, 8 and 9:

balancing said current individual transmission powers with respect to an estimation, for a given service, of a difference between said specified predetermined error rate requirement and a measured current error rate (see "varying … the amount of correction of the target reception power value, according to the difference between the detected reception error rate and the target reception error rate" recited p7 right col. claim 6 lines 3-8, and in turn "the transmission power can be controlled to a predetermined target value based on [the SIR or] the target reception power value" recited Abstract lines 7-9).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Freiberg by adding the method of Higuchi of adjusting transmission power per error rate difference in order to provide a more stable system "in which transmission power control capable of realizing a constant reception quality (communication quality) can be performed regardless of the change in the propagation environment such as the change in the number of multipath, the mobile station velocity or the like" (Higuchi, [0016] lines 5-9).

- **Regarding Dependent Claims**

  Freiberg discloses the following features:

  Claim 2, *a method as claimed in claim 1, wherein the step of balancing the current individual power includes dynamically adapting rate matching parameters associated to the services, which are related to a number of bits to be repeated or punctured during transmission of said services* (see "… a method of determining for each service the number of bits to be punctured or repeated to provide rate matching" recited Abstract lines 3-5).

  Claim 10, *a computer program product for a receiver computing a set of instructions, which when loaded into the receiver, causes the receiver to carry out the method as claimed in claim 1* (It is obvious to one skilled in the art that Freiberg's method will have to be performed with *a computer program product for a receiver computing a set of instructions, which when loaded into the receiver, causes the receiver to carry out the method,* noting especially that in Freiberg's method "the

mobiles can calculate from the received values and the values stored in the look up table the number of bits to be punctured or repeated" recited Abstract last three lines).

3. Claims 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Freiberg in view of Setty et al (US 2003/0103469, Setty hereinafter) and further in view of Reefman et al (US 2002/0163455, Reffman hereinafter).

Regarding Claim 4, Freiberg discloses *in a transmission system* (fig. 1, which "is a schematic view of a UMTS network" recited col. 1 line 66) *for transmitting simultaneously at a global transmission power, a set of various multiplexed services* (refer to fig. 1 and see "in a UMTS network in which a plurality of services of a single user having different transmission power requirements are multiplexed in one channel and the technique of rate matching is applied" recited col. 1 lines 46-49, noting that such "multiplexed in one channel" will necessarily result in *transmitting simultaneously at a global transmission power*) *comprising a set of transport data blocks of various predetermined sizes for transporting block-coded data on specific transport channels* (see "An additional requirement is that the semi-static rate matched transport block must fit into a physical channel having bits per frame N_{Frame}. One time frame is 10 milliseconds and contains N_s symbol bits where $N_s = 16 \cdot \sum N_{dataj}$" recited col. 4 lines 43-50) *having specific predetermined error rate requirements* (see "required to achieve a desired Bit Error Rate" recited col. 1 lines 53-54) *associated to quality factors* (see "deriving for each service the Energy per Bit per Noise density E_B/N_o required to achieve a desired Bit Error Rate" recited col. 1 lines 52-54, noting that "$(E_B/N_o)_i$ indicates a QoS of service i" recited col. 8 line 21), *which necessitate adequately adjusted current*

individual transmission powers (see "desired transmission quality requirements of each transport channel is fulfilled and not significantly exceeded. This means that required transmission power to meet quality requirement for all transport channels is as low as possible" recited col. 2 lines 63-67), *a method of resource optimization* (see "a method of calculating the number of bits to be punctured or repeated to achieve effective rate matching" recited col.1 15-17) *including a step of balancing said current individual transmission powers* (see "Semi-static Rate Matching: this is used to balance the transmission power requirements of different services, which are multiplexed to one Common Composite Traffic Channel (CCTrCH)" recited col. 3 lines 11-14), *wherein the step of balancing said current individual transmission powers includes a step of* using *code block size coding gains related to the transport data blocks for deriving individual quality factors matching said specific predetermined error rate requirements* (see "After the channel coding step, which is specific to the service i and is described by the coding factor (coding gain) CF_i, when the number of coded bit $N_{codi}=N_{biti} \cdot CF_i$. This value is the input to a rate matching step, the output of which is $(E_S/N_o)_i$, the QoS after the coding and rate matching" recited col. 8 lines 22-26).

Freiberg does not disclose that said power balancing is performed *with respect to the predetermined sizes of said transport data blocks*.

Setty discloses a "method and apparatus for controlling the transmission power in radio communication system" (p1 left col. lines 1-3) wherein "rate matching is applied" ([0002] line 12) comprising:

balancing transmission power *with respect to the predetermined sizes of said transport data blocks* (see "adjusting the transmission power of the system according to a relationship between the size of a Midample signal and the size of a data signal with a transmission burst" recited [0011]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Freiberg by adding the aforesaid step of Setty to Freiberg in order to provide an expanded method and system "for controlling the T_x power during the rate matching in a TDD system" as pointed out by Setty ([0005] lines 1-3), which was needed because "there are no provisions for controlling the T_x power in a TDD wireless telecommunication system" as Setty said ([0004]) and further "by reducing the T_x power requirements during rate matching, the overall power requirements of the wireless telecommunication system and the system's costs are reduced" ([0005] lines 3-6).

Although Freiberg discloses using *code block size coding gains for deriving individual quality factors matching said specific predetermined error rate requirements*, neither Freiberg nor Setty expressly discloses, regarding claim 4, *estimating* code block size coding gain and use the estimated value for the above purpose.

Reefman disclose method and system for "Audio signal compression" (Title) that correlates signal power of bit stream signals with compression gain ([0014]). Reefman's disclosure comprises:

estimating code block size coding gains (refer to fig. 1 and see "a correlation as represented in fig. 1 between the signal power of the bit-stream signal in the DSD format

and the compression gain is used to provide a quick and accurate estimate of the coding gain. As shown the signal power may be extracted from the bit-stream signal by an extraction and correlation device 6 connected with the output from the signal processor 2 and supplying the compression ratio or coding gain estimate as an input control signal to the parameter control device", [0014] wherein emphases are added).

It would have been obvious to one of ordinary skill in the art at the time of the invention to further modify the system of Freiberg by adding the coding gain estimate feature of Reefman to Freiberg in order to provide a more robust system which "is especially advantageous in losslessly compressing" (Reefman, [0006]).

Regarding claim 5, Freiberg discloses *the step of balancing the current individual transmission powers includes a step of dynamically adapting at code block size change rate matching parameters associated to the services, which are related to a number of bits to be repeated or punctured during transmission of said services* (see "… a method of determining for each service the number of bits to be punctured or repeated to provide rate matching" recited Abstract lines 3-5).

Regarding claim 6, Freiberg discloses *wherein the step of dynamically adapting at code block size change rate matching parameters associated to the services includes a preliminary step of determining groups within the set of transport data blocks, a same group comprising transport data blocks associated to quality factors, which may differ only within a predefined rage* (refer to fig. 2 and see "the steps to encode services with identical QoS requirements are shown within box 30, and identical steps to encode a set of different services are performed within box 31" recited col. 2 lines 29-32), *and a*

step of computing the rate matching parameters with respect to a predetermined rule corresponding to the associated quality factor of the group (still refer to fig. 2, especially box 30, and see, as a follow-up step to the above cited step, "rate matching step 45" recited col. 2 lines 36-37, and "the equivalent rate matching step 55 is shown in box 31" recited col. 2 line 38, and further "the rate matching factor for each service is calculated by $RF_i = DRF \cdot SRF_i$" recited col. 6 lines 4-5, noting the subscript "i" suggests that the RF is different from one service to another).

Allowable Subject Matter

4. Claims 3 and 11-14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

In previous Office Action, Examiner indicated that **Claims 3** and **11-14** appeared to contain allowable subject matters for the reasons given thereof. Such allowability is maintained herein for the same reasons given thereof.

Response to Arguments

5. Applicant's arguments filed on 9/26/2008 have been fully considered but they are not persuasive.

Applicant's arguments focus essentially on the following two issues.

Issue No. 1: Applicant's "estimate" versus prior art "calculate".

This issue in fact was presented by the Applicant prior to the previous Office Action. Examiner responded to Applicant's remarks/arguments over this issue in view of

the actual contents of Applicant's "estimate" and prior art's "calculate", which is nothing but an "estimate of a difference between the specific predetermined error rate requirement and a measured current error rate" by the Applicant while prior art provide a "calculation" of such. It should be noted that Examiner attempted then to address the particularities of the claimed limitation to show how exactly the prior arts read on such particularities.

Now, avoiding such particularities of the claimed "estimate" that Examiner has addressed, Applicant turns over to the "plain meaning" thereof and argues (Remarks page 9 last paragraph), "the reasoning in the Office Action attempts to disregard the plain meaning of the term 'estimate' by referring to the content that is estimated, rather than acknowledging that an estimate is obtained using an estimation procedure." (Emphasis added).

In responding to this argument of the "plain meaning" of said terms, Examiner respectfully refers Applicant to *Webster's II New Riverside University Dictionary*, edited by Soukhanor et al, published by Webber, and copyright 1984, 1988, 1994 by Houghton Mifflin Company (ISBN: 0-395-33957-X (thumb index, trading edition) and 0-395-37928-8 (high school edition)).

Specifically, Applicant is referred thereto at:

1) Page 444 for "estimate":

estimate … --*n*. **1.** a tentative evaluation of rough calculation. **2. a.** A preliminary calculation … **b.** The statement of such a calculation… (emphasis added);

2) Page 218 for "calculate" and "calculation":

calculate … **2.** to estimate: evaluate … (emphasis added)

calculation … **2.** an estimate based on probabilities … (emphasis added)

Additionally, Applicant is invited to check conveniently on-line dictionary, e.g., http://dictionary.referenece.com for "estimate" and "calculate". Below is just one example for each term from among five different dictionary sources cited by the website:

estimate: -verb (used with object) **1.** … calculate approximately… -noun **4.** an approximate judgment or calculation … (emphasis added).

calculate: -verb (used with object) … **2.** …; estimate; -verb (used without object) … **5.** … form an estimate… (emphasis added).

All of the above clearly define the "plain meaning" of "estimate" and "calculate", which to begin with should have been common sense knowledge of English language without the need of further elaboration. They also show how said terms of "estimate" and "calculate" read on each other. This should have addressed Applicant's argument on the "plain meaning" of the terms.

On the other hand, Examiner's reasoning in previous Office Action on the particular meaning of said terms, in view of the actual contents of Applicant claimed "estimate", has fully addressed for and still applies to Applicant's other remarks of 9/26/2008 on this issue over particularities of said terms. Therefore, Examiner deems no need to address the same particularities again in this Office Action since Applicant provided no new point in this regard than what had been presented before.

Issue No. 2, "estimating" for "deriving individual quality factors matching said specific predetermined error rate requirements".

Applicant argues (Remarks page 11 first paragraph), "the Office Action fails to articulate reasoning to show how the cited references might address 'a step of estimating code block size coding gains related to the transport data blocks for deriving individual factors matching said specific

predetermined error rate requirements' (emphasis added)", and further (page 11 second paragraph), "the Office Action does not show or make an assertion regarding how the estimated values might be used, other than to recognize that Reefman uses the compression ratio or coding gain estimate as an input control signal to a parameter control device. Using the estimated value as an input control signal, as asserted in the Office Action, is insufficient to address the recited limitation of using an estimated code block size coding gain to derive individual quality factors matching specific predetermined error rate requirements".

Examiner respectfully disagrees.

Applicant is respectfully referred to discussions clearly presented previously and currently in section 3, and see that Freiberg has clearly disclosed **using** *code block size coding gains related to the transport data blocks for deriving individual quality factors matching said specific predetermined error rate requirements* (see "After the channel coding step, which is specific to the service i and is described by the coding factor (coding gain) CF_i, when the number of coded bit $N_{codi}=N_{biti} \cdot CF_i$. This value is the input to a rate matching step, the output of which is $(E_S/N_o)_i$, the QoS after the coding and rate matching" recited col. 8 lines 22-26).

Clearly, Freiberg already requires use "code block size coding gain" for claimed purpose of "*deriving ...*". In other words, "code block size coding gain" has to be obtained already in Freiberg, regardless how, e.g., being estimated/calculated, measured or otherwise provided by a third party, and all it is missing thereof is a particular teaching of *estimating* the "code block size coding gain". Therefor, if a technique for such *estimating* is readily available, one skilled in the art, with the teachings of Freiberg, would have no difficulty and thus would naturally and obviously

adopt such technique into Freiberg because 1), to begin with, Freiberg requires use "code block size coding gain" and provided how, and 2) one skilled in the art does not need to "reinvent the wheel" to get such "coding gain" if he/she is to simply use what Reefman has readily and expressly taught, which, in addition to being a required quantity in making/using/practicing Freiberg, “is especially advantageous in losslessly compressing” (Reefman, [0006]).

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANDREW LAI whose telephone number is (571)272-9741. The examiner can normally be reached on M-F 7:30-5:00 EST, Off alternative Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kwang Yao can be reached on 571-272-3182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Andrew Lai/
Examiner, Art Unit 2416

/Kwang B. Yao/

Supervisory Patent Examiner, Art Unit 2416